

AMENDMENTS TO THE CLAIMS

Pursuant to 37 C.F.R. § 1.121 the following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) A planar antenna structure for a radio device having at least one operating band comprising:

a ground plane;

a radiating element galvanically isolated from other conductive parts of the radio device;

a feed element having an antenna feed point, wherein the feed element is only electromagnetically coupled to the radiating element so as to transfer energy to the radiating element and receive energy from the radiating element; and

a feed circuit that couples the antenna feed point to an antenna port of the radio device, wherein the feed circuit includes a reactive component and also couples the antenna feed point to the ground plane;

whereby said at least one operating band is set to a desired range on the frequency axis and to match the antenna.

2. (Previously Presented) A planar antenna structure according to claim 1, wherein said feed circuit comprises a feed circuit board between the feed element and the ground plane.

3. (Previously Presented) A planar antenna structure according to claim 2, wherein the feed circuit board comprises a feed conductor which galvanically connects said feed point to the antenna port; and

a ground conductor which electromagnetically connects the feed conductor to the ground plane at a point along the feed conductor;

whereby at least two separate operating bands are provided.

4. (Previously Presented) A planar antenna structure according to claim 3, wherein the feed conductor and the ground conductor are meandering strip conductors, which have certain inductances which act as the reactive component.

5. (Original) A planar antenna structure according to claim 1, wherein the radiating element, when installed, follows the contours of the outer surface of the radio device as regards its shape and position.

6. (Previously Presented) A planar antenna structure according to claim 5, wherein the radiating element is a rigid conductive piece belonging to a cover of the radio device.

7. (Previously Presented) A planar antenna structure according to claim 6, wherein said conductive piece is an extrusion piece.

8. (Previously Presented) A planar antenna structure according to claim 1, further comprising a dielectric layer above the ground plane, the dielectric layer including a radiating element on one surface of said dielectric layer and a feed element on the opposing surface thereof.

9. (Original) A planar antenna structure according to claim 8, wherein a plate formed by said dielectric layer, radiating element and feed element is arranged to be attached to an inner surface of a non-conductive cover of the radio device.

10. (Previously Presented) A planar antenna structure according to claim 5, wherein the radiating element is a conductive layer on an outer surface of the cover of the radio device, and the feed element is a conductive layer on an inner surface of the cover of the radio device.

11. (Previously Presented) A planar antenna structure according to claim 5, wherein at least one of the radiating element and the feed element is located inside the cover of the radio device.

12. (Original) A planar antenna structure according to claim 1, further comprising at least one radiating parasitic element.

13. (Previously Presented) A radio device comprising:

a planar antenna structure, which has at least one operating band and comprises:

a ground plane;

a radiating element galvanically isolated from other conductive parts of the radio device;

a feed element having an antenna feed point, wherein the feed element is only electromagnetically coupled to the radiating element so as to transfer energy to the radiating element and receive energy from the radiating element; and

a feed circuit that couples the antenna feed point to an antenna port of the radio device, wherein the feed circuit includes a reactive component and also couples the antenna feed point to the ground plane;

whereby said at least one operating band is set to a desired range on the frequency axis and to match the antenna.

14. (Currently Amended) A planar antenna structure for a radio device having at least one operating band comprising:

a ground plane;

a radiating element galvanically isolated from other conductive parts of the radio device;

a feed element, wherein the feed element is electromagnetically coupled to the radiating element to transfer energy to the radiating element and receive energy from the radiating element;

a feed circuit including a feed circuit board between the feed element and the ground plane, wherein the feed circuit includes a reactive component;

the feed circuit board including a feed conductor and a ground conductor, wherein the feed conductor and the ground conductor are meandering strip conductors, which have certain inductances to form said reactive component;

the ground conductor configured to electromagnetically couple the feed conductor to the ground plane at a point in the feed conductor; and

~~an antenna port of the radio device including an antenna port;~~

wherein the feed circuit also connects an antenna feed point in the feed element to the antenna port;

whereby at least two operating band are provided.